
XIII. *An Account of ſame farther Experiments touching the Aſcent of Water between two Glaſs Planes in an Hyperbolick Curve. By the late Mr.* Fr. Hauksbee, F. R. S.

THE Figure of the Hyperbolick Curve, form'd by the Aſcending of Water between two Square Glaſs Planes, as related in *Philoſoph. Tranſact.* Numb. 336. gave me occaſion to make ſome farther Enquiries; and by many Experiments I find, that the ſame Curve holds in all Directions of the Planes, the Aſſymtotes being always, one the Surface of the Water, the other a Line drawn along the touching Sides. Thus, when the touching Sides were plung'd under the Surface of the Water, *See* Tab. III. and the Angle c was depreſs'd and made to remain lower than the Angle a. as in *Fig.* 1. then would be produc'd ſuch an oblique Curve, as may be obſerv'd in that Figure. In all the ſeveral Schemes, $a\,b$ repreſents the Surface of the Water on the outſide of the Planes, and $a\,c$ the touching Sides of the ſame. Now, tho' the Curve $d\,d$ riſes between the Planes in ſuch an obliquity, yet does it conform it ſelf in its Figure to the Aſſymtotes, viz. $a\,b$ the Surface of the Water, and $a\,c$ the touching Sides of the Planes; for ſuppoſing the Aſſymtote $a\,c$ to be continued, as in the prick'd Line, till it ſurmounts the Surface of the Water to ſuch a height, or ſuppoſe the Planes extended in the ſame manner, then would the Water remain between them in the appearance of the prick'd Lines, being at all diſtances from the Axis of the Curve, equal in reſpect to the Aſſymtotes; and ſo of all the reſt of the Curves, as in the Figures 2, 3, 4, 5, 6. which are the reſult of the ſeveral Angles, made by the touching Sides of the Planes. Now when the touching Sides were plac'd upwards, parallel to the Surface of the Water (as in *Fig* 7.) and plung'd wholly under the ſame, then upon lifting them up, in the ſame Poſition, till the weight of the Water between the Planes over-ballanc'd the Power of their Attraction, two Curves, one from each ſide of the Planes, would open themſelves, and meet each other in the middle, as repreſented in the aforeſaid Figure; where they would unite, and make a Figure as join d by the prick'd Lines, being wider in the middle than towards the ſides of the Planes. And it is highly remarkable, that this Curve would always break out between the Planes, at an equal diſtance between the touching ſides and the Surface of the Water.

The ſame Figure is likewiſe produc'd between two round Glaſs Planes, (ſee *Fig* 8.) the Aſſymptotes being the ſame as the former; that is to ſay, one the Surface of the Water, the other a Tangent drawn from the touching Point, parallel to a Tangent drawn from the open or oppoſite part of the Planes, being at right Angles with a Line drawn thro' the Axis of the ſame. Theſe Experiments I find to anſwer the ſame in *Vacuo*, as in the open Air; ſo that that Element has nothing to do in this extraordinary appearance.

The Planes made uſe of in the foregoing Experiments were about 7 Inches ſquare, open'd on one ſide to an Angle of 20 Minutes or thereabouts; the round Planes were in Diameter near 3 Inches.

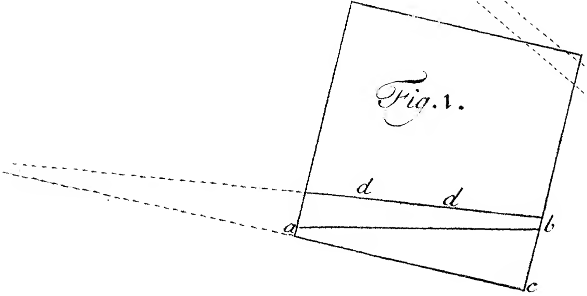


Fig. 1.

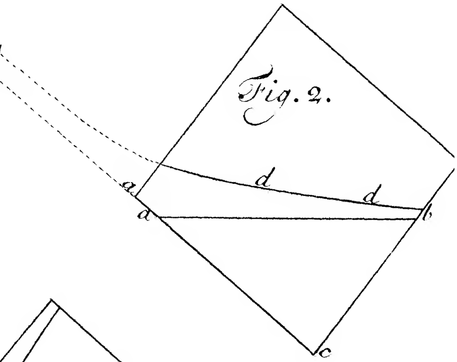
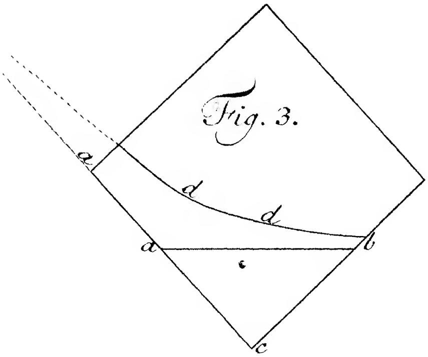


Fig. 2.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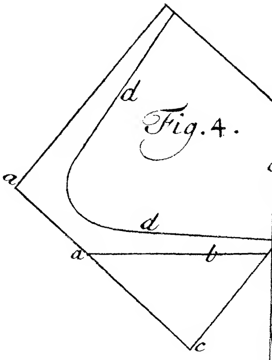
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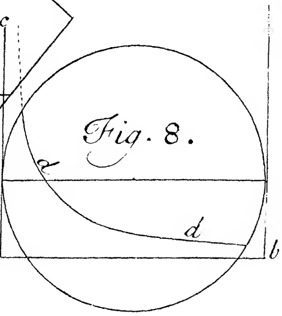
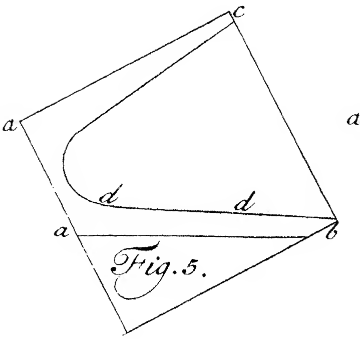


Fig. 8.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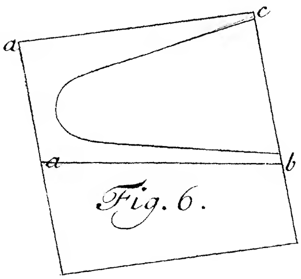
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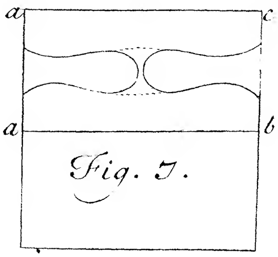
Fig. 7.

V.dr Gucht ſculp.